

Claims

1. (original) A method for the isolation of immunomodulatory carbohydrate from Aloe species, comprising:
 - (a) extracting Aloe gel juice from said Aloe species;
 - (b) performing a controlled enzymatic limited hydrolysis of total polysaccharide in said Aloe gel juice at a temperature and for a period of time suitable for controlled limited carbohydrate hydrolysis, wherein the immunomodulatory activity is maximized;
 - (c) terminating said controlled limited hydrolysis;
 - (d) optionally decolorizing and filtering said hydrolyzed Aloe gel juice; and
 - (e) purifying said decolorized and filtered hydrolyzed Aloe gel juice via nanofiltration.
2. (original) The method of claim 1 wherein said enzyme is selected from the group consisting of cellulase, pectinase or mannanase.
3. (original) The method of claim 1 wherein said enzymatic hydrolyzing agent is cellulase, added at a ratio of 0.5 g - 2.5 g of cellulase to 216 L of aloe gel juice.
4. (original) The method of claim 3 wherein step (b) is performed at 25°C for 2 -2.5 hours.
5. (original) The method of claim 1 wherein said hydrolysis is terminated by heating or by neutralization.
6. (original) The method of claim 5 wherein said hydrolysis is terminated by heating to 85-90°C for 30-50 minutes.

7. (original) The method of claim 1 wherein step (d) is accomplished by adding charcoal to said Aloe gel juice and then passing said Aloe gel juice through a series of filters with progressively smaller pore sizes.

8. (original) The method of claim 7 wherein said series of filters comprises a 30 μm filter, a 1 μm filter and a 0.7 μm filter.

9. (original) The method of claim 8 further comprising the addition of a diatomaceous earth material selected from the group consisting of celite, FW12, or FW14 as a filtration aid to said Aloe gel juice in step (c).

10. (original) The method of claim 1 further comprising optionally repeating step (e).

11. (original) A method for the isolation of immunomodulatory carbohydrate composition, wherein said composition is comprised of:

(i) primarily (>95%) of polysaccharides derived from Aloe, said polysaccharides in said composition having an average molecular weight of 70 - 80 kDa with a range between 50 - 200 kDa; and

(ii) said polysaccharides are comprised of D-galactose (approx. 5% or less), D-glucose (approx. 5% or less) and D-mannose (approximately 90%);
said method comprising:

(a) extracting Aloe gel juice from said Aloe species;

(b) performing a controlled limited hydrolysis of total polysaccharide in said Aloe gel juice at a temperature and for a period of time suitable for controlled limited carbohydrate hydrolysis, wherein the immunomodulatory activity is maximized;

(c) terminating said controlled limited hydrolysis; and

(d) optionally decolorizing and filtering said Aloe gel juice.

(e) purifying said decolorized and filtered hydrolyzed aloe gel juice via nanofiltration.

12. (original) The method of claim 11 wherein step (b) is accomplished by treating said Aloe gel juice with an enzymatic or chemical hydrolyzing agent.

13. (original) The method of claim 12 wherein said enzyme is selected from the group consisting of cellulase, pectinase or mannanase.

14. (original) The method of claim 12 wherein said enzymatic hydrolyzing agent is cellulase, added at a ratio of 0.5 g - 2.5 g of cellulase to 216 L of aloe gel juice.

15. (original) The method of claim 14 wherein step (b) is performed at 25°C for 2 -2.5 hours.

16. (original) The method of claim 11 wherein said hydrolysis is terminated by heating or by neutralization.

17. (original) The method of claim 16 wherein said hydrolysis is terminated by heating to 85-90°C for 30-50 minutes.

18. (original) The method of claim 11 wherein step (d) is accomplished by adding charcoal to said Aloe gel juice and then passing said Aloe gel juice through a series of filters with progressively smaller pore sizes.

19. (original) The method of claim 18 wherein said series of filters comprises a 30 μm filter, a 1 μm filter and a 0.7 μm filter.

20. (original) The method of claim 18 further comprising the addition of a diatomaceous earth material selected from the group consisting of celite, FW12, or FW14 as a filtration aid to said Aloe gel juice in step (c).

21. (original) The method of claim 11 further comprising optionally repeating step (e).